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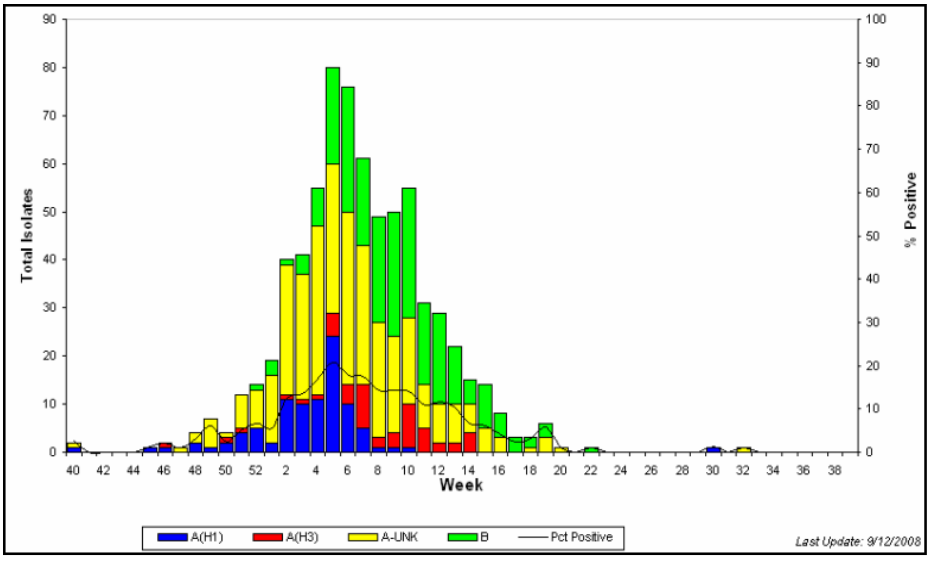
Influenza Surveillance and Updates

Influenza is a common respiratory infection causing serious illnesses and deaths each winter. The types of influenza viruses in circulation change frequently, so new vaccines are needed most years. In addition, an entirely new type of influenza could occur and cause a pandemic. Influenza surveillance data can guide vaccine strain selection, treatment decisions, resource allocation, prevention and control policies, pandemic influenza planning, and public education.

National Influenza Surveillance

The main objectives of influenza surveillance are to determine the types of viruses circulating; determine the intensity of the influenza season; and detect unusual events related to influenza such as large or severe outbreaks, unusually severe cases, or infection by novel viruses. In the United States, national influenza surveillance has five major components: virologic, outpatient illness, mortality, hospitalization, and a summary of geographic spread.



WHO Isolates From Washington — 2007 - 2008 Season
Reported By WHO/NREVSS Collaborating Laboratories (Source: CDC)

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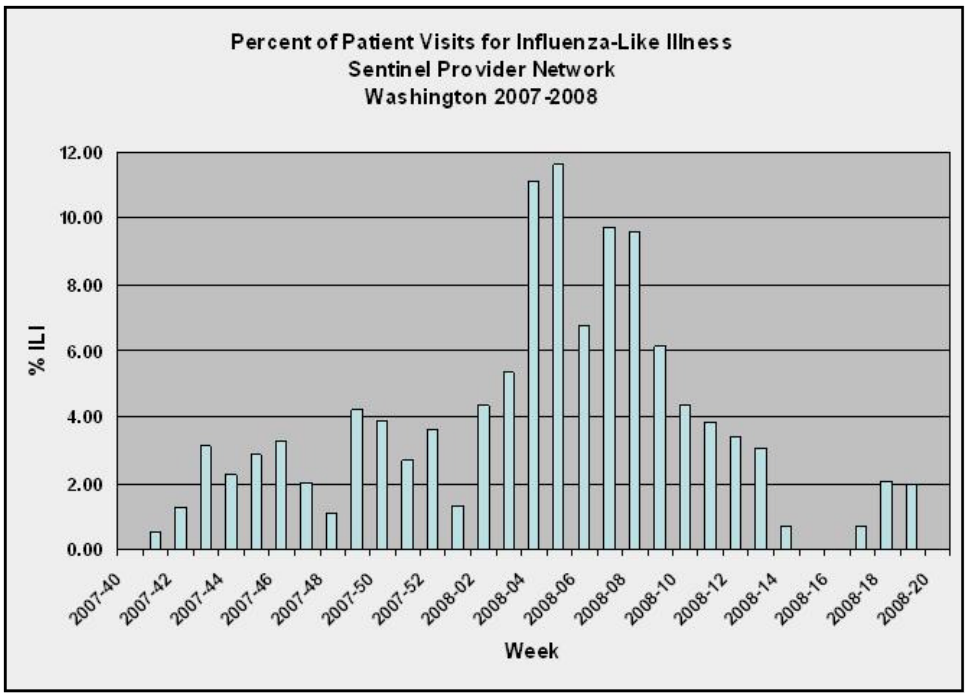
Virologic surveillance includes 150 laboratories, three in Washington State, collaborating with national and World Health Organization programs. Weekly reports give the number of specimens positive for influenza by type and age group out of the total number tested. The Centers for Disease Control and Prevention (CDC) further characterizes a subset of these clinical isolates, including testing for antiviral resistance.

Outpatient illness surveillance involves 2500 health care providers across the country reporting directly to CDC's U.S. Sentinel Provider Network the number of visits for influenza-like illness by age group out of the total number of patient visits. The providers also submit clinical specimens for viral culture. Department of Health has access to these data and can disseminate this valuable information to local health jurisdictions and providers. In addition to sentinel providers, the Biosense syndromic surveillance system also tracks outpatient illnesses.



Source: CDC

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Mortality surveillance has two components. The 122 Cities Mortality Reporting System, which includes Seattle, Spokane, and Tacoma, tracks the weekly number of deaths with any listing of pneumonia or influenza compared to total deaths. Influenza-associated pediatric deaths reported to a public health agency are investigated and relayed to CDC. Washington requests reporting of suspected or confirmed pediatric influenza deaths as rare diseases of public health significance.

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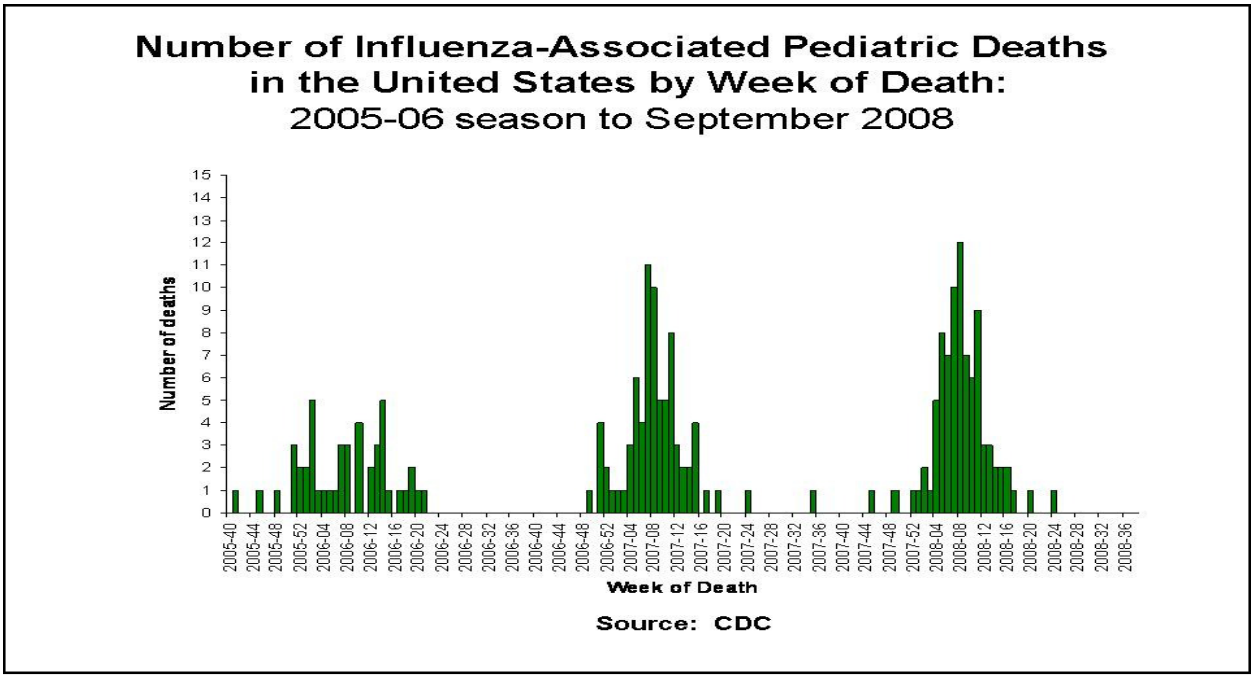

Hospitalization surveillance involves 12 sites through the Emerging Infections Program and the New Vaccine Surveillance Network tracking hospitalizations with laboratory-confirmed influenza. Washington does not participate in either of these programs.

Geographic spread of influenza is assessed by the State and Territorial Epidemiologist Report as the only system reporting state-level data. Each state summarizes its weekly influenza activity geographically as none, sporadic, local, regional, or widespread.

Local Health Jurisdictions and Providers

Multiple monitoring systems are useful because annual influenza activity can be different in different regions of a state. The Washington Administrative Code (WAC) 246-101-525 treats influenza as a special condition:

> Local health departments shall:
>
> (1) Maintain a surveillance system for influenza during the appropriate season which may include:
> (a) Monitoring of excess school absenteeism;
> (b) Sample check with health care providers, clinics, nursing homes, and hospitals regarding influenza-like illnesses; and
> (c) Monitoring of workplace absenteeism and other mechanisms.
>
> (2) Encourage submission of appropriate clinical specimens from a sample of patients with influenza-like illness to the Washington state public health laboratories or other laboratory approved by the state health officer.

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One of the most important responsibilities for a local health jurisdiction is recruiting sentinel providers for outpatient surveillance. If enough providers enroll, report, and submit clinical specimens, the data provide representative, consistent, and standardized information that can be compared with other states. Based on its population, Washington needs at least 25 participants each influenza season. Local health jurisdictions having established relationships with health care providers are essential partners in enrolling sentinel providers. Interested health care providers should contact the local health jurisdiction influenza coordinator.

Local health jurisdictions also investigate outbreaks of influenza-like illness in congregate settings. Schools and nursing homes should contact their local health jurisdictions with suspect or confirmed influenza outbreaks to receive guidance about disease control and facilitate specimen collection. Providers should report suspected influenza-associated deaths in persons under age 18 years to local health jurisdictions and assist with investigations.

Influenza Updates

One influenza A (H3N2) and the influenza B components of the 2007-2008 vaccine were not well matched to the circulating viruses. Only 2% of influenza B viruses and 23% of influenza A (H3N2) viruses tested matched. Interim national studies indicate that the overall vaccine effectiveness was 44%, supporting earlier results showing beneficial cross-protection from vaccination against distinct but related viruses. All three components have been changed for the 2008-2009 influenza vaccine.

The Advisory Committee on Immunization Practices (ACIP) recently recommended influenza vaccination for all children aged 6 months through 18 years (the so-called universal school-age recommendation because vaccination was already recommended for children 6-59 months). Anticipated benefits are expected to outweigh the challenges in implementing this recommendation. Although the rates of influenza-associated hospitalization are the lowest for children aged 5-14 years, their average influenza-associated illness rate is highest. In addition, nationally dozens of children die from influenza-associated illness each year in this country, at least half school-aged children.

The emergence of oseltamivir-resistant influenza A (H1N1) was a notable feature of the 2007-2008 influenza season. Resistance increased from less than 1% the previous season to 12% during the 2007-2008 season in the United States. Resistance to oseltamivir, a neuraminidase inhibitor, is concerning because this is the primary antiviral agent currently recommended for influenza. Adamantanes, the other class of antiviral agents, are no longer recommended for influenza due to high levels of resistance.

Severe Staphylococcal Pneumonia and Influenza

For the past several years, severe pneumonia cases associated with influenza and staphylococcal co-infections have garnered much attention as an increasing problem. Previously healthy children have died with these pneumonias. During the 2004-2005 influenza season, only one of 47 (2%) influenza-associated pediatric deaths had a co-infection with *Staphylococcus aureus*.

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The next year, three of 46 (6%) had a co-infection, and during the 2006-2007 season 22 of 74 (30%) had a co-infection including 15 with methicillin resistant *S. aureus* (MRSA). Preliminary data from 2007-2008 indicate that the trend is increasing. While there is no comparable influenza-associated mortality surveillance system for adults, there are anecdotal reports of previously healthy young and middle aged adults dying or becoming critically ill from co-infections. Department of Health and local health jurisdiction influenza coordinators are developing surveillance plans for such cases.

Influenza coordinators with questions about surveillance or case investigations can contact Erin Chester at (206) 418-5603 or Erin.Chester@doh.wa.gov